CHEL'TSOV, V. S.

"Chemical Principles of Black-and-White and Color Photography," Khim. v Shkole, No.3, 1952

CHEL'TSOV, V.S.

USSR/Chemistry - Photography 1 May 52

"Dyestuff Yield in Color Development," S. A. Bongard, A. N. Iordanskiy, V. S. Chel'tsov

"Dok Ak Nauk SSSR" Vol LXXXIV, No 1, pp 81-84

The relationship between the amts of silver and dyestuff formed during color development with dyestuff components of various classes was studied. As typical components, the following were chosen: for yellow derivs of anilide of an aroylacetic acid; purple, a compd of the pyrazalone series; blue a deriv of 1,2-hydroxynaphtalene carbonic acid contg a sulfonic acid group in the 4-position. The relationship between the optical density of the dyestuff and its surface concn in the photographic layer was detd and found to be a linear function. In order to det the yield of dyestuff, which was found to be const throughout the development process, the relationship between the optical density of the depth of color and the surface concn of metallic silver formed during the development process was experimentally established. Presented by Acad A. N. Terenin 1 Mar 52.

224T6

USSR/Chemistry - Photography Dec 52

"Adsorption of Pyrazolone and 1-Hydroxynaphthalene Derivatives on Silver Bromide," Ye. V. Stolyarova and V. S. Chel'tsov, All-Union Sci Res Cinephoto Inst

"DAN SSSR" Vol 87, No 6, pp 1025-1028

On the basis of the results obtained, it was concluded that the derivatives of pyrazolone and 1-hydroxynaphthalene adsorb on silver bromide in a monomolecular layer. Presented by Acad P. A. Rebinder 17 Oct 52.

240T12

CHEL'TSOV, V.S.; BONGARD, S.A.

Chemical nature of color development. Uspekhi Khim. 22, 482-98 '53.
(CA 47 no.19:9829 '53) (MLRA 6:4)

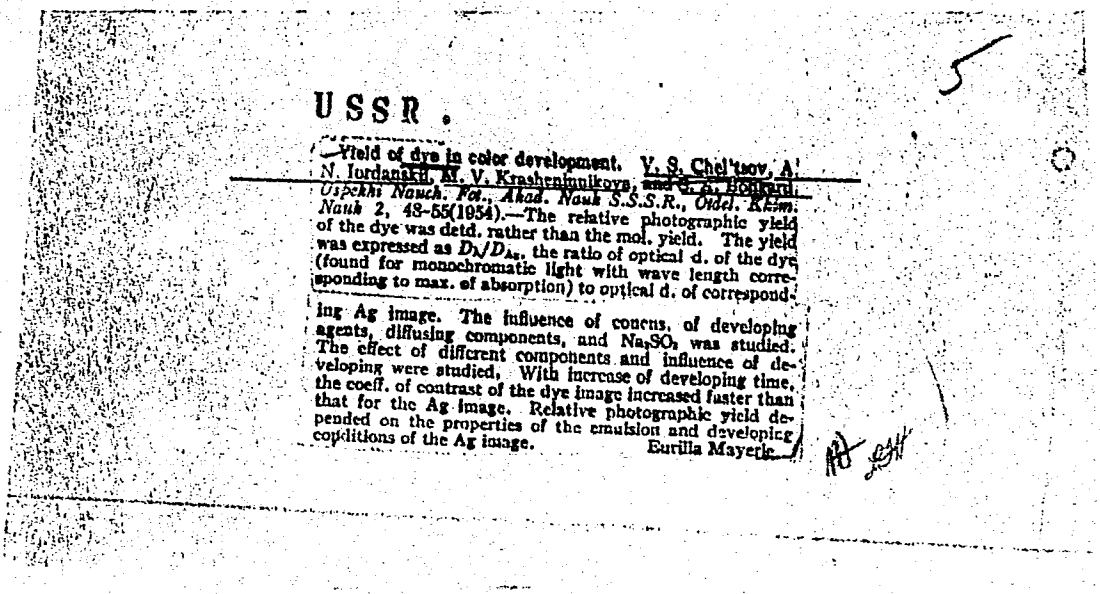
687

546.571.41

Adsorption of Pyrazolone Derivatives by Silver Bromide. E. V. STOLYAROVA and V. S. CHELTSOV. *Zhur. Fiz. Khim.*, 1953, 27, 640-646.—Freshly precipitated silver bromide was treated with the pyrazolone derivative, washed and then reduced with N:N-diethyl-*p*-phenylenediamine. The amount of derivative adsorbed by the silver bromide was determined from the spectrophotometrically measured amount of dye formed. The process of adsorption is rapid and irreversible, but is decreased when the pH is raised. Positively charged silver bromide adsorbs 3 to 4 times as much as does negatively charged silver bromide.

H.G. (from *Chem. Abs.*)

CHELTSOV, V.S.



USSR.

Yield of dye in color development. V. S. Chel'tsov, A. N. Iordanskii, M. V. Krasheninnikova, and G. A. Hollard. *Uspekhi Nauch. Fot., Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 2, 48-55(1954).—The relative photographic yield of the dye was detd. rather than the mol. yield. The yield was expressed as D_λ/D_{A_g}, the ratio of optical d. of the dye (found for monochromatic light with wave length corresponding to max. of absorption) to optical d. of corresponding Ag image. The influence of concns. of developing agents, diffusing components, and Na_2SO_3 was studied. The effect of different components and influence of developing were studied. With increase of developing time, the coeff. of contrast of the dye image increased faster than that for the Ag image. Relative photographic yield depended on the properties of the emulsion and developing conditions of the Ag image. Eurilla Mayerle

BUNIMOVICH, David Zakharovich; CHEL'TSOV, V.S., kandidat khimicheskikh nauk, redaktor; MOROZ, I.I., redaktor; DMITRIYEVA, R.V., tekhnicheskiy redaktor.

[Color photography] TSvetnaia fotografiia. Moskva, Izd-vo "Znanie," 1955. 31 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii, Seriia 4, no.5). (MLRA 8:5)
(Color photography)

CHEL'TSOV, V. S.

10

Stability of color-photographic images composed of the dyes of color development. L. I. Lavlinskaya, I. M. Fridman, V. S. Chel'tsov, and V. I. Sheberstov. *Uspekhi Nauch. Fot., Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 4, 316-20 (1955); cf. Hornsby, *Brit. J. Phot.* No. 4855, 288(1953).—Dye images formed in color positive film were kept 3 years at ordinary temps. and humidities, in the light and in the dark. The optical ds. of the magenta (*M*), yellow (*Y*), and cyan (*C*) images in complementary light were measured. The ratios of the observed ds. to the corresponding initial values (D/D_0) are graphed. The films kept in the light were almost completely bleached; for those kept in the dark one year, D/D_0 was 88, 73, and 78% for *M*, *Y*, and *C*, resp. After 3 years, the corresponding values of D/D_0 were 87, 79, and 84%. The later increase in d. of the yellow image is ascribed to conversion of some of the cyan dye to brownish yellow substances. Similar color transparencies were kept in O at 20 atm. pressure (I), *in vacuo*, and in N for various times. Results are tabulated. The value of D/D_0 for *C* decreased to 95% after 4 months in I, 87% after 12 months in air, 95% after 12 months in N, and 30% after 12 months in air at 50°; that for (*M* + *Y*) in blue light was 93% after 4 months in air and 114% after 4 months in I; that for (*M* + *Y*) after 12 months in air at 30° (relative humidity 65%) was 107% in blue light and 91% in green; that for (*M* + *Y*) after 12 months *in vacuo* at 30° was 84% in blue light and 85% in green. The loss of d. was about the same for film with acetate base as for that with nitrate

1/6

Shlbersk V, V. I.
Levkoev, I.; Freedman, I.M.; Chel'tsov, V.S.;

base. In the presence of Na_2SO_3 (0.05 g./sq. m.) values of D/D_0 for Y, M, and C fell in 3 years to 55, 55, and 20%, resp. In the same way the stability was detd. of cyan images formed with such nondiffusing components as 1-hydroxy-4-sulfo-2-naphthoic acid octadecylamide (II), 1-hydroxy-2-naphthoic acid octadecyl-3,5-dicarboxyphenylamide (III), 1-hydroxy-4-sulfo-2-naphthoic acid octadecyl-(naphthyl)amide (IV), and 1-hydroxy-2-naphthoic acid 2-(methyloctadecylamino)-5-tolylamide (V). After 30 days at 70° (relative humidity 75%) graphical values of D/D_0 for II–V were 40, 60, 95, and 85%, resp. Values of D/D_0 were also detd. for images formed with the phenylamide (VI), the *o*-, *m*-, and *p*-aminophenylamides, the *o*-, *m*-, and *p*-acetamidophenylamides, the 1- and 2-naphthylamides, and the diphenylamide of 1-hydroxy-2-naphthoic acid. For images formed from VI with diethyl-*p*-phenylenediamine (VII) and diethyl-*p*-tolylenediamine (VIII) values of D/D_0 after 30 days under the given conditions were 95 and 45%, resp.; for images formed from 1-hydroxy-2-naphthoic acid octadecylamide with VII and VIII they were 60 and 35%, resp. J. W. Loweberg, Jr.

CHELZOV, V. S., IORDANSKIY, A. N. et al.

"On the Inter-Relation of the Optical Density of Silver and Dyestuffs in Color Development," a paper given at the International Conference on Scientific Photography, Cologne, 24-27 Sep 1956

E-3072367

TSYGANOV, Mikhail Nikolayevich; CHEL'TSOV, V.S., redaktor; KOMAR'KOVA, L.M., redaktor izdatel'stva; KUZ'MIN, G.M., tekhnicheskiy redaktor

[Principles of color photography and aerial photography] Osnovy tsvetnoi fotografii i aerofotografii. Moskva, Izd-vo geodez. lit-ry, 1956. 175 p. (MLRA 9:10)
(Color photography) (Photography, Aerial)

Chel'tsov, V.S.

USSR/Optics - Photography K-11

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 13231

Author : Chel'tsov, V.S., Tkachenko, T.G.
Inst :
Title : Color Films "Eastman Color", Their Structure, and Photographic Properties.

Orig Pub : Zh. nauch. i prokl. fotografii i kinematogr., 1956, 1, No 2, 143-147

Abstract : A brief historical information are given on the films "Eastman Color" and descriptions are given for the new films produced in 1954, type 5248, 5245 and 5382, and also the black and white positive film type 5216 that was uded jointly with them.

Card 1/1

CHEL'TSOV, V.S.

"Photographic materials and processes; developments reflected in foreign periodical literature." Reviewed by V.S. Chel'tsov. Zhur. nauch. i prikl. fot. i kin. 1 no.2:159-160 Mr-Ap '56. (MIRA 9:10)

(Photography)

CHEL'TSOV, V.S.; TKACHENKO, T.G.

Color films processed by color development with diffusing couplers. (Kodachrome and others). Zhur. nauch. i prikl. fot. i kin. 1 no.6:461-467 N-D '56. (MLRA 10:2)

(Color photography)

Colour processes (Kodachrome and Ilford Colour) using diffusing, as distinct from "anchored", colour couplers are described from information in western publications.

CHEL'TSOV, V.S

KOROSTYLEV, B.N., kand.tekhn.nauk [translator]; SPASOKUKOTSKIY, N.S., kand. khim.nauk [translator]; KRUPENIN, L.K., kand.tekhn.nauk, [translator]; KOZLOV, P.V., doktor tekhn.nauk, red.; CHEL'TSOV, V.S., kand.khim.nauk, red.; SERDYUKOV, I.V., red.; SMIRNOVA, N.I., tekhn.red.

[Photographic materials and their processes; a collection of translations] Fotograficheskie materialy i protsessy ikh obrabotki; sbornik perevodov iz inostrannoi periodicheskoi literatury. Moskva, Izd-vo inostr. lit-ry, 1957. 319 p. (MIRA 11:5)
(Photography)

CHEL'TSOV, V.S.

BUNIMOVICH, David Zakharovich; CHEL'TSOV, V.S., kand.tekhn.nauk, red.; BERLYANT, I.Ya., red.; TSIRUL'NITSKIY, N.P., tekhn.red.

[Amateur photographer's handbook] Spravochnik fotoliubitelia. Pod red. V.S.Chel'tsova. Moskva, Vses. koop.izd-vo, 1957. 359 p. (Photography--Handbooks, manuals, etc.) (MIRA 11:5)

CHEL'TSOV, V.S.

"Advances in scientific photography. Vol. 5." Reviewed by V.S. Chel'tsov. Zhur.nauch.i prikl.fot.i kin. 2 no.4:316-317 Jl-Ag '57. (MLRA 10:7)
(Photography--Developing and developers)

CHEL'TSOV, Vsevolod Sergeyevich; BONGARD, Solomon Aleksandrovich; ZHERDETSKAYA, N.N., red.; IVANOVA, L.A., tekhn. red.

[Color developments of three-layer photosensitive materials] TSvetnoe proiavlenie trekhsloinykh svetochuvstvitel'nykh materialov. Moskva, Gos. izd-vo "Iskusstvo," 1958. 247 p. (MIRA 11:7)
(Color photography--Developing and developers)

Chel'tsov, V.S.

SHARLANDZIYEV, S.P.; CHEL'TSOV, V.S.

Reactivity of nondiffusing components of the quantitative energy of the activation of color development. Zhur. nauch. i pri prikl. fot. i kin. 3 no.2:117-119 Mr-Ap '58. (MIRA 11:5)

1.Kinofotoinstitut Ministerstva kul'tury Narodnoy Respubliki Bolgarii i Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut.
(Color photography)

CHEL'TSOV, V.S., kand.khim.nauk; BONGARD, S.A., kand.khim.nauk;
IORDANSKIY, A.N., kand.tekhn.nauk

Present-day methods of producing color photographs. Khim.nauk i prom. 3 no.5:576-587 '58. (MIRA 11:11)
(Color photography--Three-color process)

AUTHORS: Chartoriyskiy, B.A., Chel'tsov, V.S. SOV/77-3-6-6/15

TITLE: On the Characteristic of the Photographic Activity of the Diffusing Components of Color Developing (O kharakteristike fotograficheskoy aktivnosti diffundiruyushchikh komponent tsvetnogo proyavleniya)

PERIODICAL: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, 1958, Vol 3, Nr 6, pp 427-429 (USSR)

ABSTRACT: The article deals with the quantitative characteristic of the activity of the components in color developing. For this purpose, the effect of diverse diffusing components on the speed of color developing was investigated by means of an evaluation of the speed of development of the silver image. The investigation was done with a fine-grained positive film. Sensitograms showed in a color developer of the following composition: 2.75 grams of diethyl-p-phenylene diamine sulfate, 2 grams of anhydrous sodium sulfite, 40 grams of anhydrous sodium carbonate, 1 gram potassium bromide, component 0.00025, 0.0025 and 0.02 gram-mole, and water up to 1,000 milliliters. The active component, with respect to coupling of the primary products of the oxidation of the developing substance with the formation of the colorant, is the dominant factor. It

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On the Characteristic of the Photographic Activity of the Diffusing Components of Color Developing

determines the kinetics of color developing. The coefficient of contrast of the silver image in color developing is changed proportionally to the logarithm of concentration of the diffusing component in the developer. For, the process of color developing is bonded, and the speed of the first phase of color developing depends equally on the concentration of the developing substance and the concentration of the component. The activity of the diffusing components can be quantitatively characterized by the magnitude of the angle of slope to the axis of the abscissae of the line expressing the dependence of the coefficient of contrast on the logarithm of the concentration of the component. There are 4 graphs and 4 references, 2 of which are Soviet and 2 English.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut (The All-Union Scientific Research Institute for Motion Pictures and Photography)

SUBMITTED: November 21, 1957

AUTHOR: Chel'tsov, V.S. (Moscow) SOV-47-58-5-3/28

TITLE: Electrophotographic Method of Obtaining Pictures (Elektrofotograficheskiy sposob polucheniya izobrazheniy)

PERIODICAL: Fizika v shkole, 1958, Nr 5, pp 15-17 (USSR)

ABSTRACT: In contrast to the "wet" or chemical photographic process, there is a method of obtaining pictures by treating the hidden image with dry substances avoiding liquid solutions. This method, called xerography, was invented in 1938 by the American lawyer Chester Carlson. The author describes the process of obtaining pictures on a xerographic plate, the way of producing these plates and the method of developing them. The author indicates the purposes for which xerography is being used. This method of photographing is being widely applied in both, the US and the USSR.
There are 6 figures.

1. Electrophotography--Equipment

Card 1/1

S/081/61/000/020/079/089
B148/B110

AUTHORS: Kheynman, A. S. Chel'tsov, V. S.

TITLE: A study of color development processes

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 20, 1961, 389, abstract 20L427 (Tr. Vses. n.-i. kinofotoin -ta, no. 29, 1959, 5-15)

TEXT: In connection with the fact that intermediates of a color development reaction are thought to be leuco bases, the conditions of formation of leuco bases of azomethine dyes were examined, and their properties were studied. Experiments were made with oxidation of leuco bases of o-methyl-p-diethyl amino anyl (4) 1-phenyl-3-methyl pirazolinedione-4,5 and p-diethyl amino anyl (4) 1-phenyl-3-methyl pirazolinedione-4,5 using semiquinone and di-imine obtained from dimethyl-p-phenylene diamine and 2-amino-5-diethyl amino toluene. A method of determining the leuco bases of these dyes by potentiometric titration was worked out. [Abstracter's note: Complete translation.]

Card 1/1

S/081/61/000/022/056/076
B101/B147

AUTHORS: Chartoriyskiy, B. A., Chel'tsov, V. S.

TITLE: The characteristic of the photographic activity of the diffusing components in color development

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 22, 1961, 381, abstract 22L337 (Tr. Vses. n.-i. kinofotoin-ta, no. 29, 1959, 16-23)

TEXT: The activity of the components as regards binding of the primary oxidation product of the developer determines the kinetics of color development. It was found that the contrast coefficient of the silver image during color development varies proportionately to the logarithm of the concentration of the diffusing component in the developer. The activity of the components is characterized by the tangent of the slope of the line representing the dependence of the contrast coefficient on the logarithm of the concentration of the components. The units used in the two coordinates must be on the same scale. [Abstracter's note: Complete translation.]

Card 1/1

S/081/61/000/020/078/089
B148/B110

AUTHORS: Sharlandshiyev, S. P., Chel'tsov, V. S.

TITLE: Characterisation of the reactivity of nondiffusing components by the value of the activation energy of a color development process

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 20, 1961, 389, abstract 20L426 (Tr. Vses. n.-i. kinofotoin-ta, no. 29, 1959, 24 - 32)

TEXT: The linear dependence of the logarithm of the rate of color development on the reciprocal value of absolute temperature was experimentally found in the temperature range between 10° and 25°. For characterising the photographic activity of color components, the values of activation energy in the color development of three-layer films were determined with different color developers consisting of n-phenylene diamine derivatives. It was established that the activation energy values of the color development reaction vary with the degree of activation, qualitatively found by photographic methods, of developers and color components. [Abstracter's note: Complete translation]

Card 1/1

PORTNAYA, B.S.; BOBKOVA, T.P.; KRASHENINNIKOVA, M.V.; CHEL'TSOV, V.S.; LEVKOYEV, I.I.

Studies in the field of azomethine dyes. Part 4: Indoaniline dyes derivatives of 1,2-hydroxynaphthoic acid anides containing heterocyclic residues in the presence of nitrogen amide. Trudy NIKFI no. 40:106-118 '60. (MIRA 15:2)

(Indoaniline)(Dyes and dyeing)

[redacted], V.I.; RODIONOVA, N.I.; CHEL'TSOV, V.S.

Effect of sulfite on the activity of couplers and the density of dyes formed in color development. Zhur.nauch.i prikl.fot. i kin. 6 no.5:358-362 S-O '61. (MIRA 14:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut (NIKFI)

(Color photography--Developing and developers)

PORTNAYA, B.S.; SOLOV'YEVA, I.A.; TURITSYNA, N.F.; LEVKOYEV, I.I.; CHEL'TSOV, V.S.; KRASHENINNIKOVA, M.V.; BOBKOVA, T.P.; TKACHENKO, T.G.

Characteristics of the masking color components made of pyrazolin arylazo derivatives and anilides of 1,2-hydroxynaphtoic acid. Usp. nauch. fot. 8:35-43 '62. (MIRA 17:7)

S/058/63/000/003/045/104
A062/A101

AUTHORS: Portnaya, B. S., Solov'yeva, I. A., Turitsyna, N. F., Levkoyev, I.I., Chel'tsov, V. S., Krasheninnikova, M. V., Bobkova, T. P., Tkachenko, T. G.

TITLE: On the properties of masking color components of arylazo derived pyrazolones (5) and anilides of 1,2-oxynaphthoic acid

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1963, 86, abstract 3D584 ("Uspekhi nauchn. fotogr.", 1962, v. 8, 35 - 43)

TEXT: An investigation was made on the dependence of the color photographic properties of some arylazo derived pyrazolones and anilides of 1,2-oxynaphthoic acid on the nature and position of the substitution agents in the arylazo-group. It is established that the phenyl derivatives of pyrazolones and of 1,2-oxynaphthoic acid are compounds considerably less susceptible of reaction in the conditions of color developing than the initial purple and pale blue components. The entry of electropositive substitution agents into the phenylazo-group somewhat increases the reaction capacity of the components, the most favorable influence

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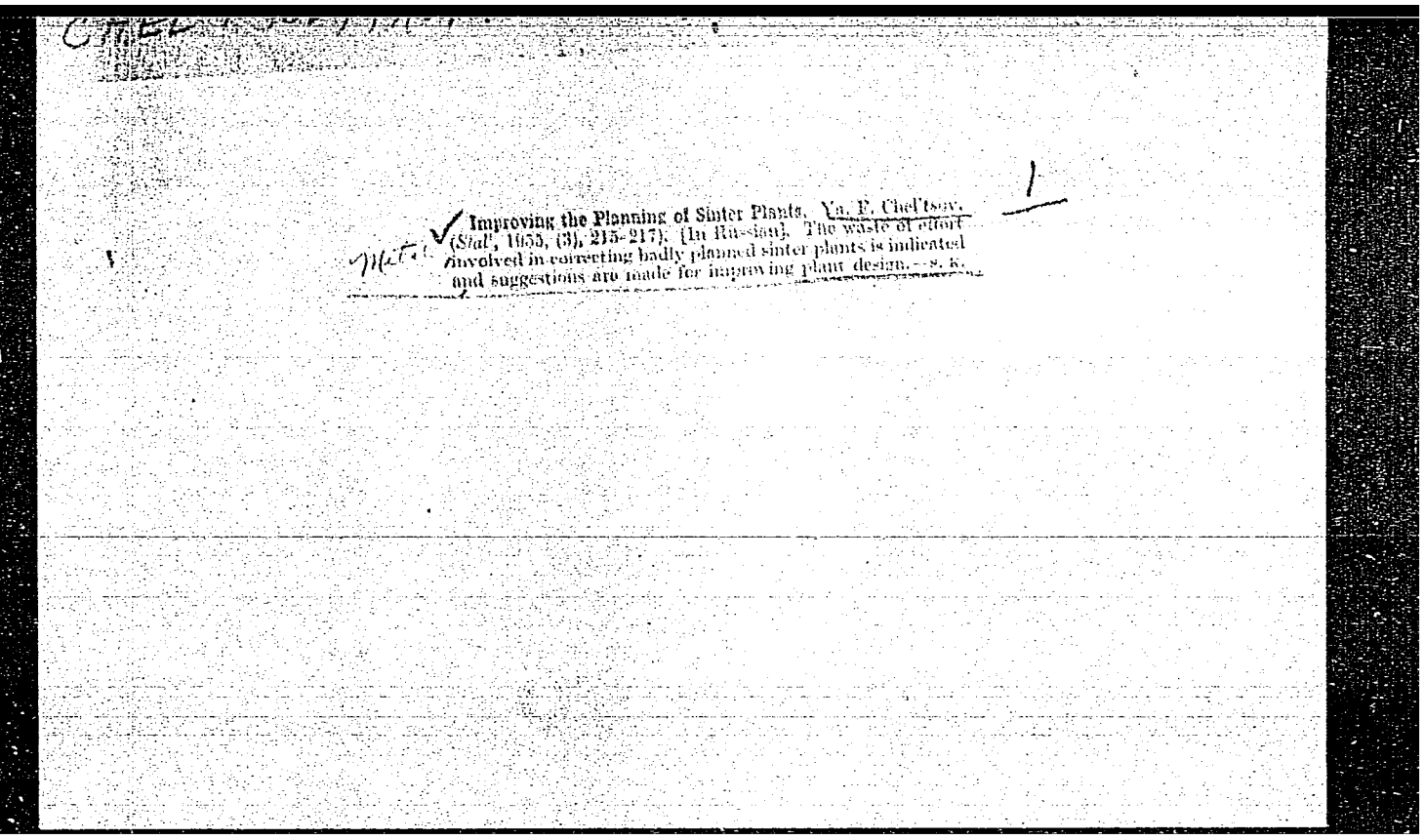
then being shown by the oxy-group in the position 4. Electronegative substitution agents in the phenylazo-group of masking pale blue components cause a sharp decrease of the activity, and in the case of derivatives of 3-alkylpyrazolone they may show also a favorable influence. Some of the obtained compounds may be employed for preparing negative and contratype masking color motion-picture materials. It is shown that arylazo-derivatives of 3-alkyl- and 3-acylamino-pyrazolone usually absorb the light of the blue-violet range (maximum of absorption 400 - 420 mμ). The entry of strong electron donor substitution agents into the phenylazo-group causes an appreciable deepening of their coloration. The absorption spectra of the masking pale blue components of the derivatives of 1,2-oxynaphthoic acid include the blue-violet and partially the green portion of the spectrum and in many cases they consist of two bands whose relative intensity may change strongly according to the nature and position of the substitution agents in the arylazo-group. A particularly sharp increase of the absorption intensity in the blue-violet range takes place in the case of 2-methyl- and 2-chlorphenylazo derivatives. It is established that the majority of the investigated masking purple and pale blue components at pH 5 are, as a rule, stable enough in respect to solutions containing ferrocyanic potassium. In alkaline bleaching solutions their stability strongly decreases.
[Abstracter's note: Complete translation]
Card 2/2

PORTNAYA, B.S.; TKACHENKO, T.G.; BOBKOVA, T.P.; CHEL'TSOV, V.S.; LEVKOYEV, I.I.

Studies in the field of azomethine dyes. Report No.7: Photographic properties of some substituted phenols of the benzene series. Zhur. nauch. i prikl. fot. i kin. 10 no.4:278-286 Jl-Ag '65. (MIRA 18:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut (NIKFI).



Improving the Planning of Sinter Plants. Ya. F. Chel'tsov. (*Stal'*, 1955, (3), 215-217). (In Russian). The waste of effort involved in correcting badly planned sinter plants is indicated and suggestions are made for improving plant design.—S. K.

CHEL'TSOV, Ya.F., inzhener.

Improvement of crushers used in the sintering process. Stal' 15 no.1: 83 Ja '55. (MLRA 8:5)

1. Zavod "Zaporozhstal."
(Crushing machinery)

SOV/137-57-10-18606

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 10, p 19 (USSR)

AUTHOR: Chel'tsov, Ya.F.

TITLE: Functioning of the Equipment of the Zaporozhstal' Plant Sintering Mill (Rabota oborudovaniya aglomeratsionnoy fabriki zavoda "Zaporozhstal' ")

PERIODICAL: Tr. Nauchn-tekhn. o-va chernoy metallurgii, 1956, Vol 8, pp 213-219

ABSTRACT: The sintering mill (S) of this plant, designed in accordance with plans drawn by the Mekhanobr Institute, was started up at the end of 1951. All the equipment and mechanism of the S are of Soviet manufacture. The S is equipped with model K-2-50 machines of the UZTM (Urals Heavy Machinery Plant). The consumption of electrical energy per t finished sinter was 15.1 kw in 1952 and 14.5 kw in 1953. Preventive overhaul is performed in accordance with centralized plans. This makes it possible to do these repairs at specific intervals. Note is taken of a number of shortcomings in the design discovered in the process of operation of the S. In order to increase the life of various assemblies and parts of the equipment, a number of

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SOV/137-57-10-18606

Functioning of the Equipment of the Zaporozhstal' Plant Sintering Mill

modifications have been made in the S, including centralized lubrication, serving all points and packings of the machines. Measures required to improve the operation of the equipment are noted.

F.K.

Card 2/2

4E2c

[illegible] Analytical Investigation of the Tipping Curves of [illegible]. Ya. P. Chaltsev and G. A. Dubrovin. (Stal', 1956, (9), 772-779). [In Russian] A theoretical analysis of the working of a new design of skip-tipping arrangement used at the Zaporozhstal' works is presented. Its use at other works is recommended.—S. K.

CHEL'TSOV, YA.F.

133-7-3/28

AUTHOR: Prikhod'ko, I.P. and Levshin, B.A., Engineers.

TITLE: On the Designing of Blast Furnace Skip Hoists (K proyektirovaniyu skipovykh pod'yemnikov domennykh pechey)

PERIODICAL: Stal', 1957, No.7, pp. 584 - 586 (USSR)

ABSTRACT: This is a criticism of the paper by Ya.F. Chel'tsov and G.A. Dubrovin (Stal', 1956, No.9).
There are 2 figures and 2 Slavic references.

ASSOCIATION: Giprostal'

AVAILABLE: Library of Congress

Card 1/1

DOBROV, V.P., kand.tekhn.nauk, dotsent; CHEL'TSOV, Ya.F., inzh.

Experimental investigation of static forces in changing blast furnace tuyeres. Stal' 21 no.12:1065 D '61. (MIRA 14:12)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Blast furnaces--Maintenance and repair)
(Materials handling)

CHEL'TSOV, Ya.F.

Performance of fittings for the feeding of air to a blast furnace. Metallurg 9 no.11:8 N '64. (MIRA 18:2)

RUDENKO, Yu.N., kand. tekhn. nauk; SYROV, Yu.P., kand. tekhn. nauk; CHEL'TSOV, M.B., inzh.

Discussion of I.A. Syromiatnikov's article "Principal trends in the development of electric power distribution networks." Izv. vys. ucheb. zav.; energ. 8 no.11:109-112 N '65. (MIRA 18:11)

1. Sibirskiy energeticheskiy institut Sibirskogo otdeleniya AN SSSR.

DEYCHMAN, E.N.; RODICHEVA, G.V.; CHEL'TSOV, P.A.

Synthesis of complex fluorosulfate and phosphate compounds of indium. Zhur. neorg. khim. 10 no.1:89-91 Ja '65.
(MIRA 18:11)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova AN SSSR. Submitted Aug. 24, 1963.

L 10263-66 EWT(1)/T/EWA(h) IJP(c) GG/AT

ACC NR: AP6000206 SOURCE CODE: UR/0056/65/049/005/1492/1494

AUTHOR: Chel'tsov, V. F.

ORG: none

TITLE: The behavior of a semiconductor in a strong resonant radiation field

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 5, 1965, 1492-1494

TOPIC TAGS: semiconductor laser, electromagnetic field, dielectric susceptibility, phonon, photon, carrier density, semiconductor carrier, valence band

ABSTRACT: The author determines the susceptibility $\kappa(\omega)$ of the valence electrons in an intrinsic semiconductor interacting with a free radiation field in the steady state. It is assumed that the photon density is much smaller than the carrier density, and that the radiative transitions have a collective character. The radiation field is assumed to be strong enough to preclude its description with the aid of perturbation theory. Optical phonons are neglected. The carrier distribution function is also calculated. It is shown that the short-wavelength limit of the radiation spectrum becomes stabilized at a certain excitation level of the crystal, owing to the saturation of the susceptibility. The numerical values obtained for estimating purposes yield physically feasible values for the saturation carrier density and for the corresponding limiting wave vector and reduced mass. Author thanks L. V. Keldysh for discussion of a number of problems. Orig. art. has: 8 formulas. [02]

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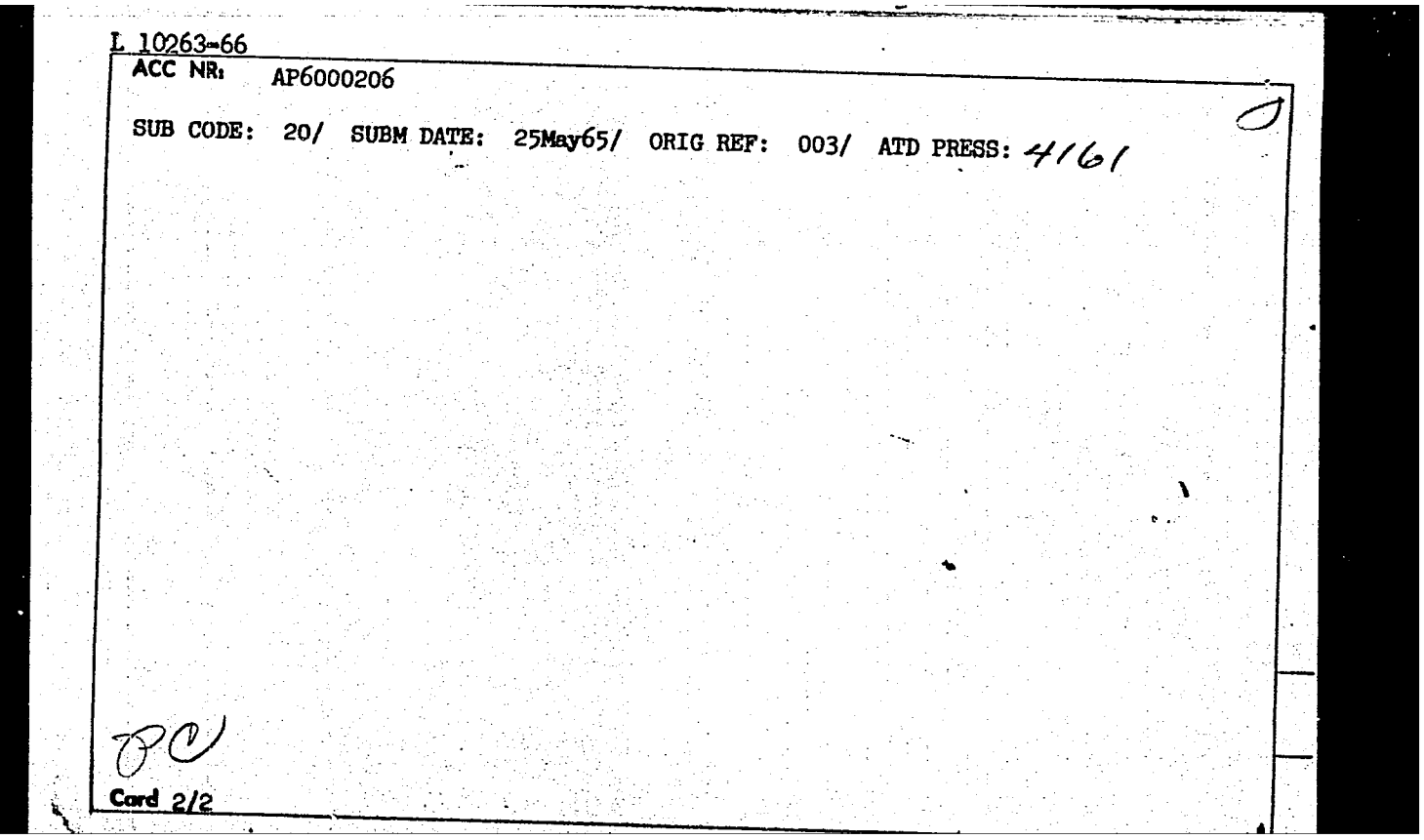

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SUB CODE: 20/ SUBM DATE: 25May65/ ORIG REF: 003/ ATD PRESS: 4161

Card 2/2

SHOLOKHOV, V.V.; CHKL'TSOV, Yu.G.

Maeotic and Pontian sediments in the western Ust'-Urt. Izv. vyz. ucheb. zav.; geol. i razved. 3 no. 10:121-122 O '60.
(MIRA 13:12)

1. Kompleksnaya Yuzhnaya geologicheskaya ekspeditsiya AN SSSR.
(Ust'-Urt--Sediments (Geology))

KRAVCHENKO, M.F.; MERKLIN, R.L.; CHEL'TSOV, Yu.G.

Chokrakskoye deposits of the Krasnovodskiy Peninsula. Trudy MGRI 39:57-65 '63. (MIRA 16:10)

CHEL'TSOV, Yu.G.

Convergence phenomena in Akchagil' Mactridae and Cardiidae.
Paleont. zhur. no.4:72-77 '64. (MIRA 18:3)

1. Moskovskiy geologorazvedochnyy institut.

CHEL'TSOV, Yu.G., aspirant

Biostratigraphy of the Akchagyl' sediments of Kopetdag. Izv. vys. ucheb. zav.; geol i razv. 7 no.10:30-42 O '64. (MIRA 18:7)

1. Nauchno-issledovatel'skaya laboratoriya geologicheskikh kriteriyev otsenki perspektiv neftegazonosnosti.

CHEL'TSOV, Yu.G.

New Akchagyl Cardiidae of Turkmenia. Paleont. zhur. no.2:23-34 '65. (MIRA 18:6)

1. Gosudarstvennyy geologicheskiy komitet SSSR i Nauchno-issledovatel'skaya laboratoriya geologicheskikh kriteriyev otsenki perspektiv neftegazonosnosti.

ARKHIPOV, A.Ya.; ALTAYEVA, N.V.; BAYBULATOVA, Z.K.; VISKOVSKIY, Yu.A.; GOLENKOVA, N.P.; KRAVCHENKO, M.F.; KUPRIN, P.N.; LEVIN, A.I.; POL'STER, L.A.; SEMOV, V.N.; SYRNEV, I.P.; USHKO, K.A.; SHOLOKHOV, V.V.; Prinimali uchastiye: RODIONOVA, M.K.; CHEL'TSOV, Yu.G.; KUZNETSOV, Yu.Ya., kand. geograf. nauk, nauchnyy red.

[Geology and oil and gas potentials of the south of the U.S.S.R.; Kara-Bogaz-Gol (Gulf) region (eastern part of the Middle Caspian oil- and gas-bearing basin).] Geologiia i neftegazonosnost' iuga SSSR; Prikarabogaz'e (vostochnaia chast' Srednekaspiiskogo neftegazonosnogo basseina). Leningrad, Nedra, 1964. 300 p. (Trudy Nauchno-issledovatel'skoy laboratorii geologicheskikh kriteriyev otsenki perspektiv neftegazonosnosti no.12).

BIRYUZOVA, Valentina Ivanovna; BOROVYAGIN, Valeriy Leonidovich; GILEV, Vladimir Petrovich; KISELEV, Nikolay Andreyevich; TIKHONENKO, Anna Sergeyevna; CHENTSOV, Yuriy Sergeyevich; FRANK, G.M., otv. red.

[Electron microscopic methods in studying biological objects] Elektronnomikroskopicheskie metody issledovaniia biologicheskikh ob"ektov. [By] V.I.Biriuzova i dr. Moskva, Izd-vo AN SSSR, 1963. 203 p. (MIRA 17:5)

1. Chlen-korrespondent AN SSSR (for Frank). 2. Institut radiatsionnoy i fiziko-khimicheskoy biologii AN SSSR (for Biryuzova). 3. Institut kristallografii AN SSSR (for Kiselev). 4. Laborat - riya elektronnoy mikroskopii AN SSSR (for Gilev). 5. Institut morfologii zhivotnykh AN SSSR (for Chentsov). 6. Institut biologicheskoy fiziki AN SSSR (for Borovyagin).

CHEL'TSOV-BEBUTOV, A.M.

Areal concept in ornithography [with summary in English]. Biul.MOIP. Otd.biol. 61 no.2:41-44 Mr-Ap '56. (MLRA 9:8)
(BIRDS--MIGRATION)

CHEL'TSOV-BEBUTOV, A.M.

New nesting place of flamingos in the Soviet Union. Uch. zap. Mosk. un. no.197:95-101 '58. (MIRA 11:9)
(Zhaksy-Akkul', Lake--Flamingos)

CHEL'TSOV-BEBUTOV, A.M.

Destruction of migratory locusts by birds in the Semiozernyy District of Kustanay Province. Trudy Inst.geog. 54:308-328 '53. (MLRA 7:5)

(Semiozernyy District--Birds, Injurious and beneficial)
(Birds, Injurious and beneficial--Semiozernyy District)
(Locusts)

CHEL'TSOV-BEBUTOV, A.M.

Observations of reptiles of central Kazakhstan on the route between the settlement of Dzhulek and the town of Atbasar. Trudy Inst.geog. 54:423-434 '53. (MLRA 7:5)
(Kazakhstan--Reptilia) (Reptilia--Kazakhstan)

CHEL'TSOVA-BEBUTOVA, A. N.

Dissertation: "Influence on Birds and Mammals of Deviations in the Level of Lake Naurzum." Cand Biol Sci, Moscow Oblast Pedagogical Inst, 15 Apr 54. (Vechernyaya Moskva, Moscow, 6 Apr 54)

So: SUM 243, 19 Oct 1954

CHEL'TSOV-BEBUTOV, A.M.

Characteristics of the bird and mammalian fauna of Kirghizia as a part of the central highland zone of Asia. Vest. Mosk. un. Ser. biol., pochv., geol., geog. 13 no. 1:191-197 '58. (MIRA 11:7)

1. Moskovskiy gosudarstvennyy universitet, Kafedra biogeografii
(Kirghizistan--Birds)
(Kirghizistan--Mammals)

CHEL'TSOV-BEBUTOV, A.M., TERSKIKH, I. I., KOBORINA, L. N.

"Data concerning the study of natural foci of ornithosis." p. 99

Desyatoye soveshchaniye po parazitologicheskim problemam i priodnoochagovym boleznyam. 22-29 Oktyabrya 1959 g. (Tenth Conference on Parasitological Problems and Diseases with Natural Foci 22-29 October 1959), Moscow-Leningrad, 1959, Academy of Medical Sciences USSR and Academy of Sciences USSR, No. 1 254 pp.

Inst. of Virology, AS USSR Moscow

CHEL'TSOV-BEBUTOV, A.M.

Quantitative estimation of the bird population of open landscapes.
Ornitologiia no.2:16-27 '59. (MIRA 14:7)
(Kura-Aras Lowland--Birds) (Wildlife census)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320009-6"

CHEL'TSOV-BEBUTOV, A.M.; KOZHEVNIKOVA, R.K.

Use of meridional automobile routes in studying the migration of birds. Ornitologiia no.3:451-463 '60. (MIRA 14:6)
(Birds--Migration)

CHEL'TSOV-BEBUTOV, A.M.; OSADCHAYA, N.P.

Catching, counting, and marking of jerboas. Mat. k pozn. fauny i flory SSSR. Otd. zool. no.38:155-164 '60. (MIRA 14:3)
(Jerboas) (Animals, Marking of)

TERSKIKH, I.I.; CHEL'TSOV-BEBUTOV, A.M.; KUBORINA, L.N.; KELEYNIKOV, A.A.

Studies on ornithosis in birds and its focal distribution. V. Vop. virus. 6 no.2:131-135 Mr-Ap '61. (MIRA 14:6)

1. Institut virusologii imeni D.I.Ivanovskogo AMN SSSR, Moskva.
(ORNITHOSIS)

TERSKIKH, I.I.; CHEL'TSOV-BEBUTOV, A.M.; BEKLESHOVA, A.M.

Susceptibility of some types of wild rodents to the ornithosis virus; preliminary report. Zhur.mikrobiol., epid.i immun. 33 no.4:39-42 Ap '62. (MIRA 15:10)

1.Iz Instituta virusologii imeni Ivanovskogo AMN SSSR.
(ORNITHOSIS VIRUS) (RODENTS AS CARRIERS OF DISEASE)

CHEL'TSOV-BEBUTOV, A.M.

Biological significance of black grouse mating in the light of the sexual selection theory. Ornitologiia no.7:389-397 '65.

(MIRA 18:10)

VORONOV, A. G.; TUPIKOVA, N. V.; CHELTSOV-BEBUTOV, A. M.; VYSHIVKIN, D. D.

"Some trends in modern biogeographic mapping of the land."

report scheduled to be presented at the 20th Intl Geographical Cong, London, 6 Jul-11 Aug 64.

Univ. of Moscow.

CHEL'TSOV, V.F.

Radiative transitions in semiconductors. Zhur. eksp. i teor. fiz. 48 no.2:531-537 F '65. (MIRA 18:11)

CHEL'TSOVA, L. P.

CHEL'TSOVA, L. P. -- "On the Various Types of Cell Multiplication during the Formation of Plant Tissues." Acad Sci USSR, Inst of Genetics, Moscow, 1956. (Dissertation for the Degree of Candidate of Biological Sciences)

SO: Knizhnaya Letopis' No 44, October 1956

CHEL'TSOVA, L.P.

Development of vascular tissue in wheat and onion leaves. Izv. AN SSSR. Ser.biol. no.4:74-82 Jl-Ag '56. (MLRA 9:10)

1. Institut genetiki Akademii nauk SSSR.
(PLANT CELLS AND TISSUES) (LEAVES--ANATOMY) (WHEAT) (ONIONS)

AUTHOR: CHEL'TSOVA, L.P.

TITLE: Cytological Data on the Development of Leaf Stomata in Wheat. (Tsitologicheskiye dannyye o razvitii ust'its lista pshenitsy. Russian).

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 6, pp 1372 - 1375 (U.S.S.R.)

ABSTRACT: In most of the works the leaf stomata are stated to develop by the division of epithelical cells. It remains, however, uncertain how a cell of leaf stomata can develop from a differentiated epidermal cell which has a completely different structure and function. The authorcarried out the present work in order to solve this problem. Germs of wheat type "Moskovka" were used for this purpose. From ill. 1 we can see that the stomata of the wheat leaf are distributed according to a certain order. The cells of the epidermis of the leaf from regular lines. Some of them do not have stomata, in others the epidermis cells change with stomata. The cell lines without stomata change again with those which have stomata. This structure makes it possible to determine exactly the places of future formation of stomata. The number of cells from which a stomata develops is constant and in the case of wheat it is 4. The stomata of the wheat leaf were found to develop by division of differentiated epidermal cells. On this occasion dark not-differentiated cells develop which are charac-

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Cytological Data on the Development of Leaf Stomata in Wheat.

terized by changing zytophysiologic indices. They are transitory cells between epidermal cells and stomata. The formation of dark cells can be preceded by a mitotic as well as by an amitotic division of epidermal cells. This apparently depends on the degree of differentiation of the latter. The dark cells, however, develop in both cases after the division . (4 illustrations, 3 Slavic references)

ASSOCIATION: Institute for Genetics of the Academy of Science of the USSR. (Institut gentikii Akademii Nauk SSSR).
PRESENTED BY: LYSENKO, T.D., Member of the Academy.
SUBMITTED: 12 November 1956
AVAILABLE: Library of Congress

CHEL'TSOVA, L.P.

Cell division during the development of wheat and onion leaves.
Trudy Inst. gen. no.24:243-250 '58. (MIRA 11:9)
(Wheat) (Onions) (Plant cells and tissues)

17(4)
AUTHOR: Chel'tsova, L. P.

SOV/20-127-5-55/58

TITLE: On Cell Division in the Root Regeneration of Taraxacum officinale

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 5, pp 1132-1135 (USSR)

ABSTRACT: Many cytologists recently deal with the problem of the propagation types of cells in the regeneration of plants because of its theoretical and practical importance. The data given on this problem in the publications are, however, very contradictory: several authors speak of different forms of an amitotic division (as e.g. Ya. Ye. Ellengorn, I. Ye. Glushchenko and A. S. Afanas'yeva)(Ref 1), whereas others say that only mitosis is possible in regeneration (e.g. M. S. Navashin, L. M. Makushenko) (Ref 3). The author investigated Taraxacum officinale in 1957-58 with respect to this. The plants were digged out every month (from May until September) and 4-5 cm long root sections below the root neck planted in boxes in the glass-house. In June no mitoses were found in the bast cells, in September single mitoses occurred in the parenchyma cells. Figure 1 shows amitotic

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divisions in the bast parenchyma. Table 1 gives the division character of the same cells in the formation of the layer of the table cells which cover the places of cut. In conclusion it may be said that mitotic as well as amitotic divisions were observed in the root regeneration of Taraxacum officinale. Mitoses occur in the regeneration of a root cut in May if it grows. An amitotic division was observed if the roots were cut in September when the growth had ceased and the cells had become incapable of mitosis. There are 1 figure, 1 table, and 4 Soviet references.

ASSOCIATION: Institut genetiki Akademii nauk SSSR (Institute of Genetics of the Academy of Sciences, USSR)

PRESENTED: April 23, 1959, by T. D. Lysenko, Academician

SUBMITTED: April 22, 1959

CHEL'TSOVA, L.P.

Relation between mitosis and amitosis during the formation of wound periderm in regenerating daffodil roots. Trudy Inst. gen. no. 27:300-303 '60. (MIRA 13:12)
(Regeneration (Botany))

CHEL'TSOVA, L.P.

Types of nuclear cleavage. Dokl. AN SSSR 135 no.4:971-974 '60.
(MIRA 13:11)
1. Institut genetiki Akademii nauk SSSR. Predstavleno akademikom T.D.Lysenko.
(Cell nuclei) (Cell division (Biology))

CHEL'TSOVA, L.P.

Mitotic and amitotic division of plant cells. Izv. AN SSSR. Ser. biol. no.3:451-458 My-Je '60. (MIRA 13:7)

1. Institute of Genetics, Academy of Sciences of the U.S.S.R., Moscow.
(PLANT CELLS AND TISSUES) (KARYOKINESIS)
(AMITOSIS)

CHEL'TSOVA, L.P.

Formation of secondary meristems in plants. Trudy Inst. gen. no.28: 208-216 '61. (MIRA 14:11)

(MERISTEM)

S/205/61/001/004/028/032
D298/D303

AUTHORS: Fonshteyn, L. M., and Chel'tsova, L. P.

TITLE: The effects of irradiating the endosperm of the wheat seed on the mitotic activity of the radicle cells

PERIODICAL: Radiobiologiya, v. 1, no. 4, 1961, 619–623

TEXT: Due to the lack of published information, the authors set out to study the remote effects of ionizing radiation on the process of cell division in the vegetable organism. The method used was transplantation of the bud onto the endosperm, described in a previous work by L. M. Fonshteyn (Ref. 12: Radiobiologiya, 3, 1961). The experiments were conducted with Mosgibrid 48 wheat, dried seeds of which were exposed to gamma-radiation from a Co^{60} source in doses of 20, 100 and 500 kr. The buds of non-irradiated seeds were grafted onto endosperms irradiated as above. A variant with grafting of a non-irradiated bud onto a non-irradiated endosperm was used as a control. The direct and remote effects of ionizing radiation were compared by introducing variants with

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non-irradiated seeds and seeds irradiated directly in a dose of 20 kr. It was found that direct irradiation of seeds in a dose of 20 kr caused marked inhibition of mitotic activity. In a radiation dose of 20 kr, transplantation of a non-irradiated bud onto an irradiated endosperm did not affect mitotic activity, but with doses of 100 and 500 kr, a marked inhibition of mitotic activity was noted. In the two latter instances, inhibition of mitotic activity was noted by the 9th day after irradiation, whereas with direct irradiation in a dose of 20 kr, inhibition of mitotic activity ensued as early as the 4th day. Similarly, direct irradiation in a dose of 20 kr led to marked inhibition of the radicle cells' mitotic activity. The grafting of a non-irradiated bud onto an irradiated endosperm in several cases also induced inhibition of the radicle cells' mitotic activity. Direct irradiation of the seeds gave approximately the same inhibition of mitotic activity by the 4th day in both the endosperm and subepidermal layer, but the effects of the irradiated endosperm on the radicle cells' mitotic activity was more clearly marked by the 4th day than were the effects of the subepidermal layer. The restoration of mitosis also ensued earlier in the

The effects of...

endosperm. The authors conclude that the action of radiation on mitotic activity proceeds by different mechanisms, depending on whether irradiation is direct or remote. Analysis of the results showed that the percentage of prophases in the control was much higher than the percentage of prophases in the test series. From this it is concluded that the reduction of the radicle cells' mitotic activity caused by grafting a non-irradiated bud onto an irradiated endosperm proceeds via a reduction in the number of prophases. There are 2 tables and 18 references: 14 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: J. Carlson, J. Cellular and Comp. Physiol., 35, 89, 1950; D. Mewissen, Radiation Res., 6, 85, 1957.

ASSOCIATION: Institut genetiki AN SSSR (Institute of Genetics, AS USSR), Moscow

SUBMITTED: January 10, 1961

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CHEL'TSOVA, L.P.

Correlation between the isoelectric points of the nucleolus and the protoplasm of tissue cells capable of mitotic activity. Trudy Inst. gen. no.29:442-447 '62. (MIRA 16:7)

(Plant cells and tissues)
(Isoelectric point)
(Karyokinesis)

CHEL'TSOVA, L.P.

Isoelectric points of the nucleolus and the protoplasm and mitotic activity of cells of the growing point and developing leaves. Dokl. AN SSSR 143 no.1:210-213 Mr '62. (MIRA 15:2)

1. Institut genetiki AN SSSR. Predstavleno akademikom T.D. Lysenko.

(Cell division(Biology))
(Isoelectric point)
(Plant cells and tissues)

S/020/62/143/002/018/022
B144/B138

AUTHOR: Chel'tsova, L. P.

TITLE: Studies of cell regeneration and the formation of secondary meristems

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 2, 1962, 434-436

TEXT: Hypotheses of the interrelation between the nature of cell division and the physiological state of the cell are verified by determining the isoelectric points (I. E. P.) in regenerates from 1) tomato stems; 2) dandelion roots; and 3) flax hypocotyls. In mitotic cells of young leaves the I. E. P. of the nucleolus has been found by the author in a higher pH zone than that of the plasma. Nonmitotic cells have shown an inverse relation (Ref. 1: DAN, 143, no. 1 (1962)). 1) I. E. P. behavior of nucleus, plasma, and nucleolus of the different cell types encountered in regenerate formation is evident from Fig. 1 and consistent with previous results on cell division given by A. S. Afanas'yeva, I. Ye. Glushchenko, Ya. Ye. Ellengorn, Izv. AN SSSR, ser. biol., no. 3 (1955). 2) Cambium, callus, and meristematic centers multiply by mitotic division. The wound periderm

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shows mitotic division in May, but mitotic and nonmitotic divisions from June to September. This is also confirmed by I. E. P. curves. 3) Nucleolus and plasma I. E. P. of epidermis cells are similar, but in the cells of the growing points the prevalence of the nucleolus I. E. P. over the plasma I. E. P. is again indicative of mitotic cell division. Thus, it is confirmed that the I. E. P. interrelation of nucleolus and plasma is characteristic of the nature of cell division. There are 2 figures and 8 references: 7 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: J. Adams, Bot. Gaz. 78 (1924).

ASSOCIATION: Institut genetiki Akademii nauk SSSR (Institute of Genetics of the Academy of Sciences USSR)

PRESENTED: September 29, 1961, by T. D. Lysenko, Academician

SUBMITTED: September 26, 1961

FEDOROV, A.K.; CHEL'TSOVA, L.P.

Prolification of inflorescenses in common timothy(Phleum pratense L.)
Bot. zhur. 48 no.7:1005-1011 Jl '63. (MIRA 16:9)

1. Institut genetiki AN SSSR, Moskva.
(Timothy grass) (Prolification)

CHEL'TSOVA, L.P.

Characteristics of the isoelectric point of the nucleolus, nucleus and protoplasm in cells of the apical cones of wheat and the mitotic activity of the cells. Dokl. AN SSSR 152 no.1:198-201 S '63. (MIRA 16:9)

1. Institut genetiki AN SSSR. Predstavleno akademikom T.D.Lysenko.
(Isoelectric point) (Karyokinesis)

MOROZOV, A.S.; CHEL'TSOVA, L.P.; LEBEDEVA, N.I.

Physiological characteristics of the development of spring, dual-purpose and winter wheat sown in spring and in fall. Trudy Inst. gen. no.30:119-128 '63. (MIRA 17:1)

CHEL'TSOVA, L.P.

Displacement of isoelectric points of the nucleolus, nucleus and protoplasm of cells of the vegetative cone of wheat in the process of plant growth and development. Trudy Inst. gen. no.30:220-229 '63. (MIRA 17:1)

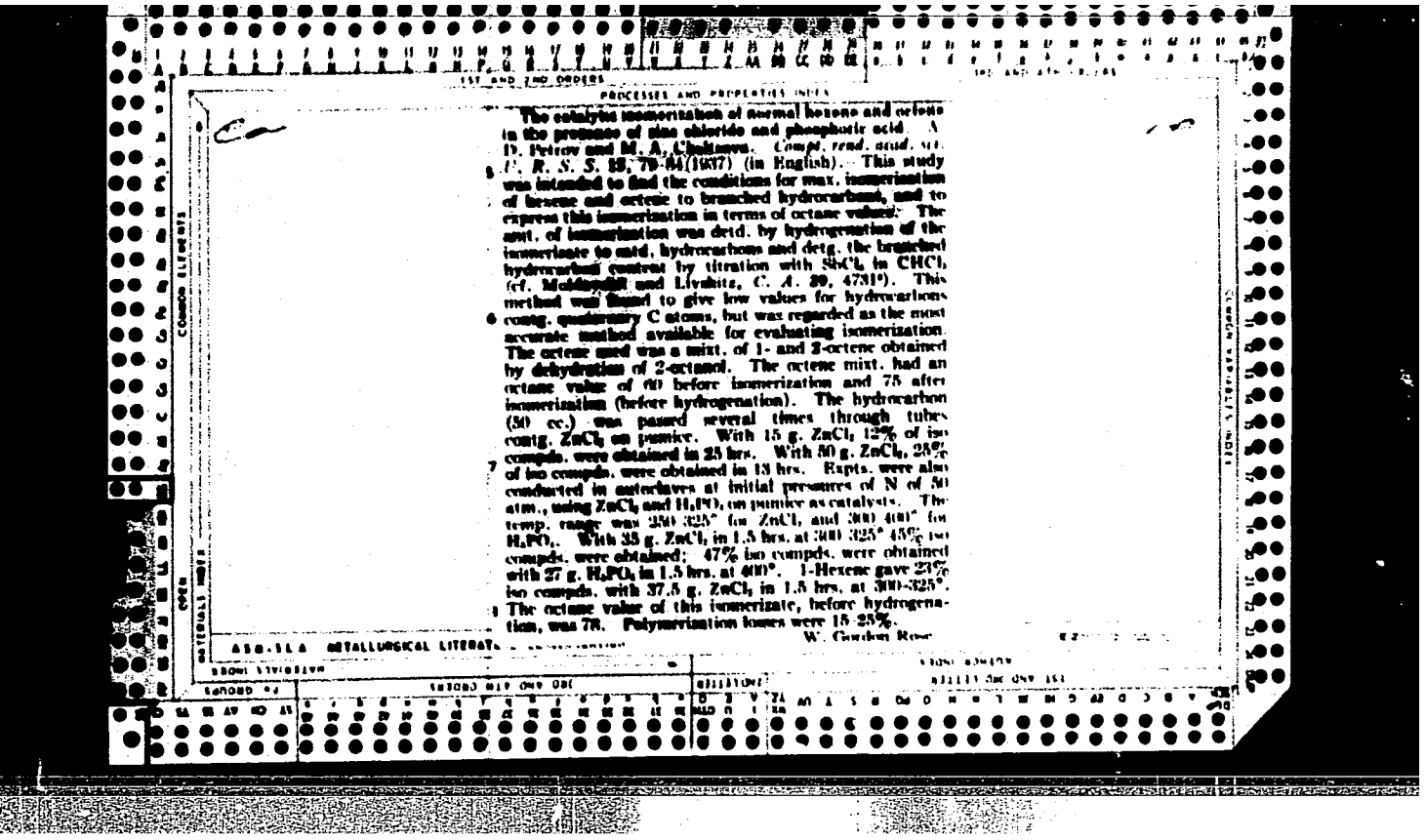
CHEL'TSOVA, L.P.; RYABININA, M.I.

Study on the isoelectric points of the nucleolus, nucleus and protoplasm in plant cells. Trudy Inst. gen. no.31:231-245 '64.
(MIRA 17:9)

CHEL'TSOVA, L.P.

Shift of the isoelectric points of protoplasm, nucleus and nucleolus in the cells of the apical cones of timothy grass. Fiziol. rast. 11 no.1:120-126 Ja-F '64. (MIRA 17:2)

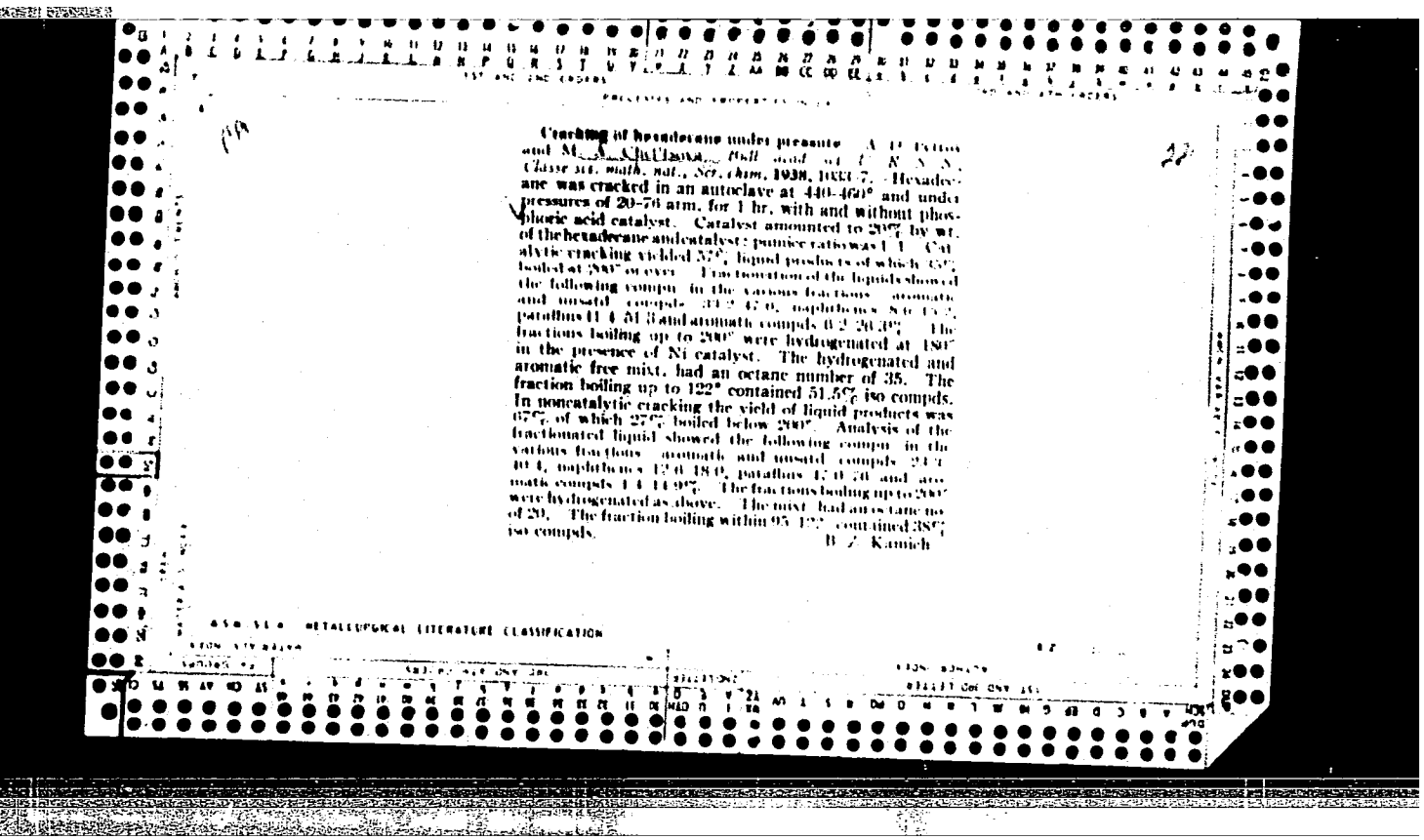
1. Institut genetiki AN SSSR, Moskva.



The catalytic isomerization of normal hexene and octene in the presence of zinc chloride and phosphoric acid. A. D. Petrov and M. A. Chalimova. *Compt. rend. acad. sci. U. R. S. S.* 15, 79-84 (1937) (in English). This study was intended to find the conditions for max. isomerization of hexene and octene to branched hydrocarbons, and to express this isomerization in terms of octane values. The amt. of isomerization was detd. by hydrogenation of the isomerizate to satd. hydrocarbons and detg. the branched hydrocarbon content by titration with $SbCl_5$ in $CHCl_3$ (cf. Middleditch and Livshitz, *C. A.* 30, 4731[9]). This method was found to give low values for hydrocarbons contg. quaternary C atoms, but was regarded as the most accurate method available for evaluating isomerization. The octene used was a mixt. of 1- and 2-octene obtained by dehydration of 2-octanol. The octene mixt. had an octane value of 60 before isomerization and 75 after isomerization (before hydrogenation). The hydrocarbon (50 cc.) was passed several times through tubes contg. $ZnCl_2$ on pumice. With 15 g. $ZnCl_2$ 12% of iso compds. were obtained in 25 hrs. With 50 g. $ZnCl_2$, 28% of iso compds. were obtained in 13 hrs. Expts. were also conducted in autoclaves at initial pressures of N of 50 atm., using $ZnCl_2$ and H_3PO_4 on pumice as catalysts. The temp. range was 250-325° for $ZnCl_2$ and 300-400° for H_3PO_4. With 35 g. $ZnCl_2$ in 1.5 hrs. at 300-325° 45% iso compds. were obtained; 47% iso compds. were obtained with 27 g. H_3PO_4 in 1.5 hrs. at 400°. 1-Hexene gave 21% iso compds. with 37.5 g. $ZnCl_2$ in 1.5 hrs. at 300-325°. The octane value of this isomerizate, before hydrogenation, was 78. Polymerization losses were 15-25%.

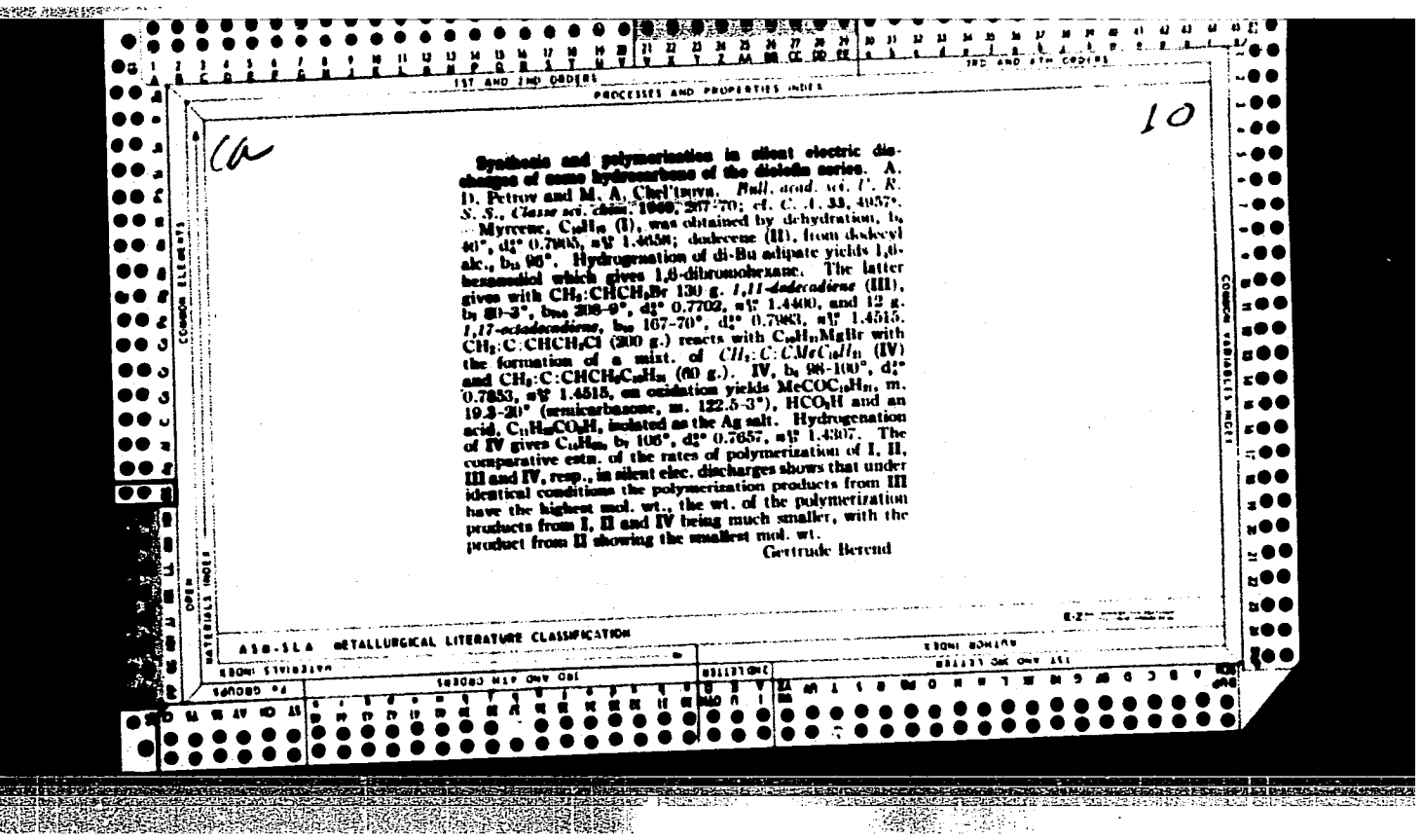
W. Gordon Rose

ASB-SLA METALLURGICAL LITERATURE



Cracking of hexadecane under pressure. A. P. Dubna and M. S. Chukhanova. *Bull. acad. sci. U.R.S.S., Classe sci. math., nat., Sér. chim.* **1938**, 1033-7. Hexadecane was cracked in an autoclave at 440-460° and under pressures of 20-70 atm. for 1 hr. with and without phosphoric acid catalyst. Catalyst amounted to 20% by wt. of the hexadecane and catalyst : pumice ratio was 1:1. Catalytic cracking yielded 57% liquid products of which 63% boiled at 200° or over. Fractionation of the liquids showed the following compn. in the various fractions: aromatic and unsatd. compds. 31.2-47.6, naphthenes 8.6-15.2, paraffins 41.4-51.3 and aromatic compds. 0.2-20.3%. The fractions boiling up to 200° were hydrogenated at 180° in the presence of Ni catalyst. The hydrogenated and aromatic free mixt. had an octane number of 35. The fraction boiling up to 122° contained 51.5% iso compds. In noncatalytic cracking the yield of liquid products was 67% of which 27% boiled below 200°. Analysis of the fractionated liquid showed the following compn. in the various fractions: aromatic and unsatd. compds. 21.1-40.4, naphthenes 12.6-18.0, paraffins 47.0-70 and aromatic compds. 1.4-14.0%. The fractions boiling up to 200° were hydrogenated as above. The mixt. had an octane no. of 20. The fraction boiling within 95-122° contained 38% iso compds.

B. Z. Kamich



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

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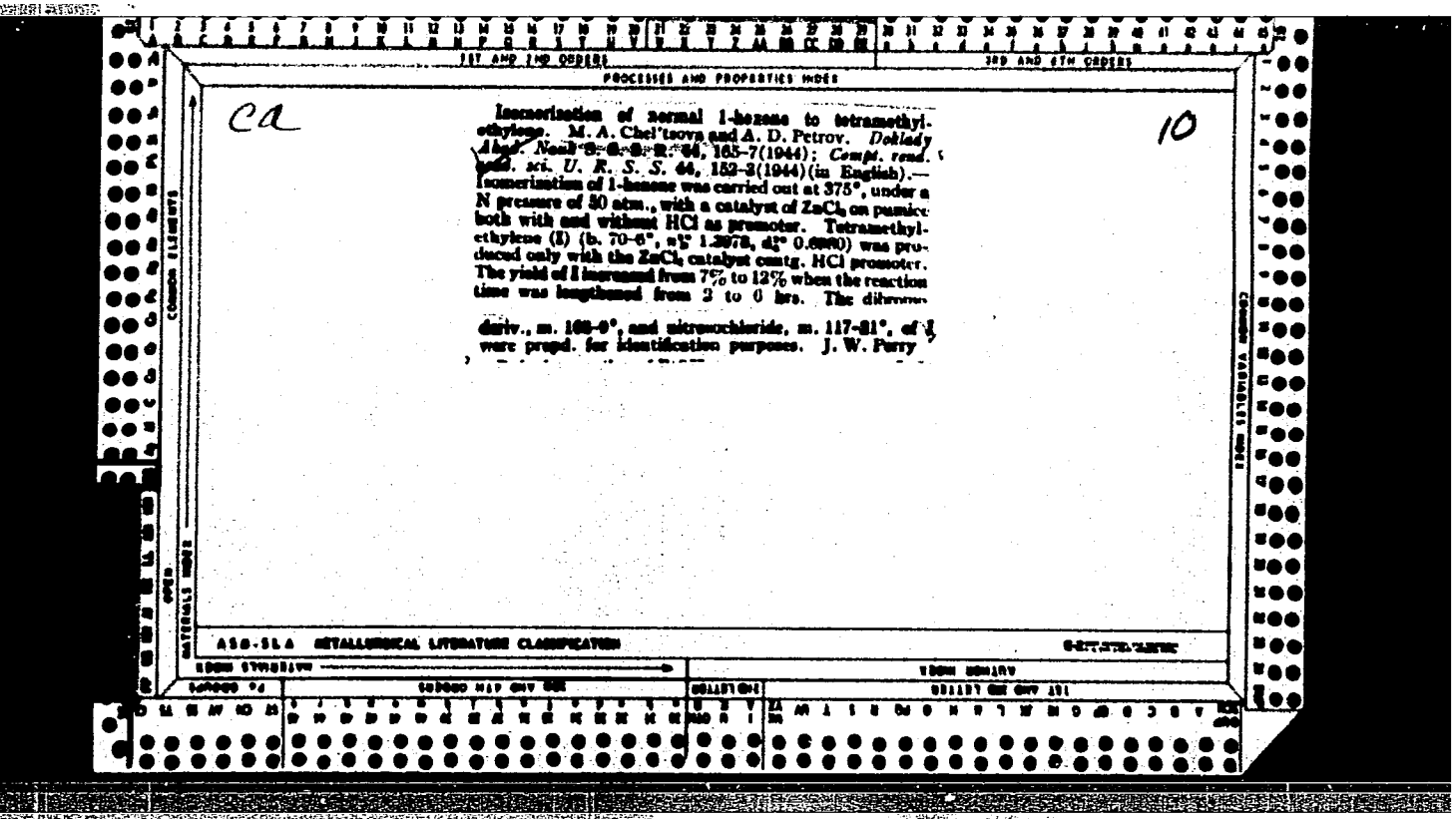
Synthesis and polymerization in silent electric discharges of some hydrocarbons of the diolefin series. A. D. Petrov and M. A. Chel'tsova. *Bull. acad. sci. U. R. S. S., Classe sci. chim.* 1940, 267-70; cf. *C. A.* 33, 4057⁹. Myrcene, $C_{10}H_{16}$ (I), was obtained by dehydration, b_{15} 60°, d_4^{20} 0.7985, n_D^{20} 1.4650; dodecene (II), from dodecyl alc., b_{15} 95°. Hydrogenation of di-Bu adipate yields 1,6-hexanediol which gives 1,6-dibromohexane. The latter gives with CH_2:$CHCH_2Br$ 130 g. *1,11-dodecadiene* (III), b_5 80-3°, b_{760} 208-9°, d_4^{20} 0.7702, n_D^{20} 1.4400, and 12 g. *1,17-octadecadiene*, b_{15} 167-70°, d_4^{20} 0.7983, n_D^{20} 1.4515. CH_2:C:$CHCH_2Cl$ (200 g.) reacts with $C_8H_{17}MgBr$ with the formation of a mixt. of CH_2:C:$CMeC_8H_{17}$ (IV) and CH_2:C:$CHCH_2C_8H_{17}$ (60 g.). IV, b_5 98-100°, d_4^{20} 0.7853, n_D^{20} 1.4515, on oxidation yields $MeCOC_8H_{17}$, m. 19.3-20° (semicarbazone, m. 122.5-3°), HCO_2H and an acid, $C_9H_{17}CO_2H$, isolated as the Ag salt. Hydrogenation of IV gives $C_{12}H_{26}$, b_{760} 196°, d_4^{20} 0.7657, n_D^{20} 1.4307. The comparative estn. of the rates of polymerization of I, II, III and IV, resp., in silent elec. discharges shows that under identical conditions the polymerization products from III have the highest mol. wt., the wt. of the polymerization products from I, II and IV being much smaller, with the product from II showing the smallest mol. wt.

Gertrude Berend

A58-SLA METALLURGICAL LITERATURE CLASSIFICATION



1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

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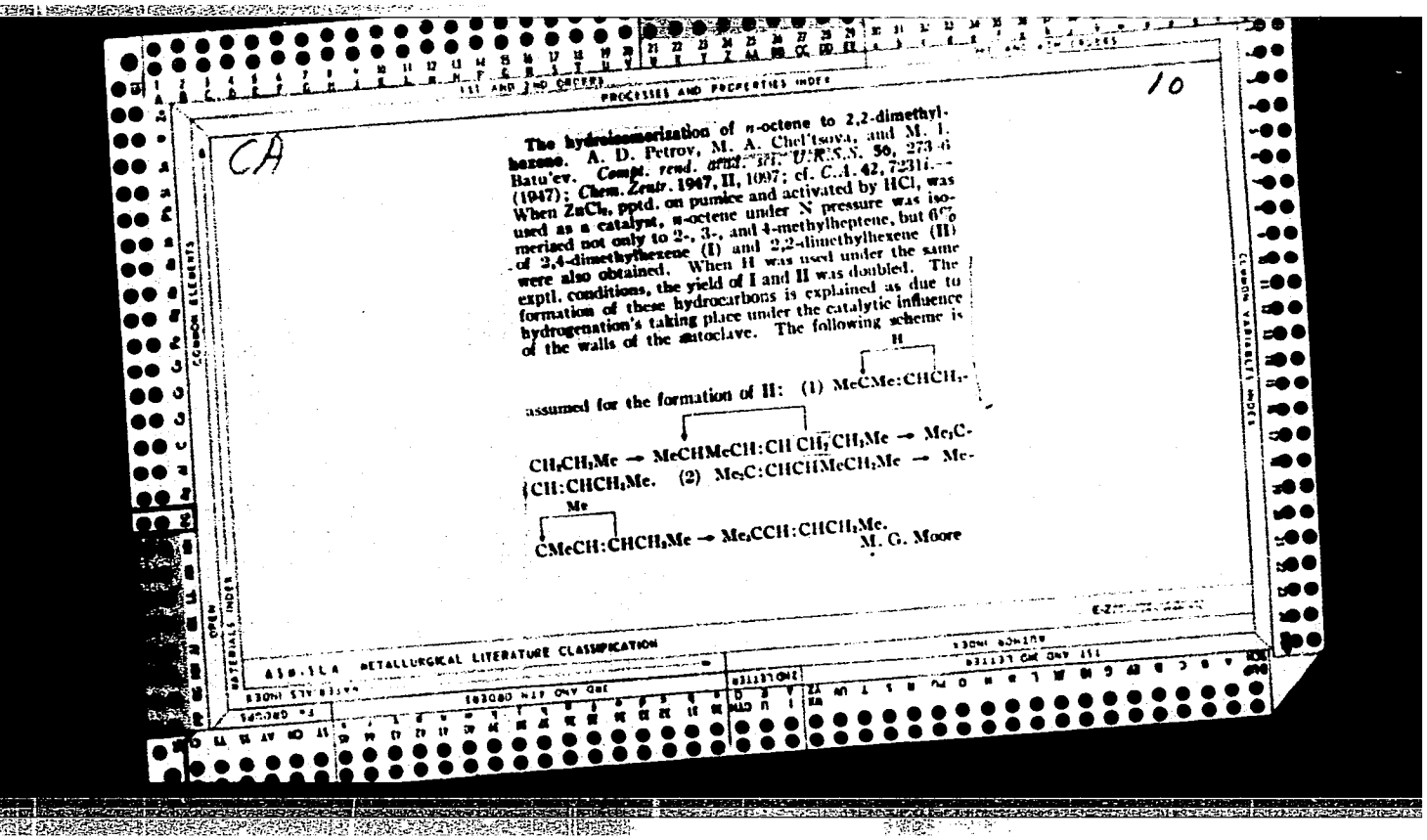
Isomerization of normal 1-hexene to tetramethylethylene. M. A. Chel'tsova and A. D. Petrov. *Doklady Akad. Nauk S.S.S.R.* 44, 165–7(1944); *Compt. rend. acad. sci. U. R. S. S.* 44, 152–3(1944)(in English).—Isomerization of 1-hexene was carried out at 375°, under a N pressure of 30 atm., with a catalyst of $ZnCl_2$ on pumice both with and without HCl as promoter. Tetramethylethylene (I) (b. 70–6°, n_D^{15} 1.3978, d_4^{20} 0.6980) was produced only with the $ZnCl_2$ catalyst contg. HCl promoter. The yield of I increased from 7% to 12% when the reaction time was lengthened from 2 to 6 hrs. The dihydro-

deriv., m. 108–9°, and nitrosochloride, m. 117–21°, of I were prepd. for identification purposes. J. W. Perry

ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION



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The hydroisomerization of *n*-octene to 2,2-dimethylhexane. A. D. Petrov, M. A. Chel'tsova, and M. I. Batu'ev. *Compt. rend. acad. sci. U.R.S.S.* **56**, 273-6 (1947); *Chem. Zentr.* **1947**, II, 1097; cf. *C.A.* **42**, 7231i.—When $ZnCl_2$, pptd. on pumice and activated by HCl, was used as a catalyst, *n*-octene under N pressure was isomerized not only to 2-, 3-, and 4-methylheptene, but 6% of 2,4-dimethylhexene (I) and 2,2-dimethylhexene (II) were also obtained. When II was used under the same exptl. conditions, the yield of I and II was doubled. The formation of these hydrocarbons is explained as due to hydrogenation's taking place under the catalytic influence of the walls of the autoclave. The following scheme is assumed for the formation of II: (1) $MeCMe{:}CHCH_2CH_2CH_2Me \rightarrow MeCHMeCH{:}CHCH_2CH_2Me \rightarrow Me_2C(CH{:}CHCH_2Me)_2$. (2) $Me_2C{:}CHCHMeCH_2Me \rightarrow CMeCH{:}CHCH_2Me \rightarrow Me_2CCH{:}CHCH_2Me$.

M. G. Moore

lower temps. Addn. of active H_2 to isobutene takes place contrary to Markovnikov's rule but its addn. to butene, resulting in isobutene, obeys that rule. (2) The role of H_2 is essential also in plain isomerization of olefins, i.e. starting with the ready-made olefin, not in the nascent state; thus, 2-octene on $ZnCl_2$ and in the presence of H_2 gave a yield of isocenes twice as great as on heating in N_2, and one of the products was 2,2-dimothyl-3-hexene. The mechanism of the isomerization is $McCH{:}CHCH_2CH_2$-$CH_2CH_2Me \rightarrow Me_2C{:}CHCH_2CH_2CH_2Me \rightarrow Me_2C{:}CHCH$-$McCH_2Me \rightarrow Me_3CCH{:}\ CHCH_2Me$, the 1st step involving a shift of the CH_2 group in position 4 to the C atom in position 2, the 2nd step, a transfer of the Me in position 7 (in the 2-methylheptene) to the C atom in position 4 (in heptene), the 3rd step, a transfer of the Me in position 4 (in 2,4-dimethyl-2-hexene) to the C atom in position 2 (h hexene). Thus, active H_2 not only acts in the same way as the H^+ ion in acid isomerization but its isomerizing effect is stronger, and isomerization results in more highly branched chains. (3) The successful isomerization of olefins, in the presence of H_2, to isoolefins with a quaternary C atom, is promising for the search of catalysts which would direct hydropolymerization to highly branched isomers; as au example, the codimerization $Me_2C{:}CH_2$ $McCH{:}CMe_2 \rightarrow Me_2CHCH_2CMe_2$ (Obsolentsv, C. A. 35, 5090[9]), which results in a compd. of octane no. 72, might be directed, by a suitable catalyst + H_2, to $Me_3{-}CCH_2CM_3$, of octane no. 123.

Synthesis and dehydration of some higher glycols. M. A. Chel'tsova and A. D. Petrov. *Doklady Akad. Nauk S.S.S.R.* 58, 1379–81(1947).—Di-Bu adipate and $C_9H_{11}Br$ gave 12% *7,13-dimethyl-7,12-octadecanediol*, m. 69.5–70.0°, by the Grignard route. Dehydration with $(CO_2H)_2$ gave a liquid product contg. some 17% O, but devoid of OH groups. Similarly, $C_{10}H_{13}Br$ and $CH_2(CO_2Et)_2$ gave *11,13-diethyl-11,13-tricosanediol*, m. 35.5–6.0°, whose behavior was as above. $(CO_2Et)_2$ and CH_2:$CHCH_2Br$ gave *tetraallylethanediol*, which on attempted dehydration by anhyd. $CuSO_4$ in dehydronaphthalene at 180° gave only tar. CH_2:$CHCH_2MgCl$ and di-Bu adipate gave 33% *tetraallylhexanediol*, b$_4$ 191–2°, m. 39°, which, dehydrated by $CuSO_4$ in a N atm. in mesitylene gave a hydrocarbon, b$_{10}$ 166–8°, n_D^{20} 1.5170, d_4^{20} 0.8852, analyzed as $C_{18}H_{30}$, apparently *tetrapropenyl-1,3-benzene*, since with $KMnO_4$ it gave AcOH, $(CO_2H)_2$, $(CH_2CO_2H)_2$, and no HCO_2H. The hydrocarbon readily forms a glassy polymer. G. M. Kosolapoff

CHELTSOVA, M. A.

USSR/Chemistry - Isomerization Sep/Oct 51

"Mechanism of Isomerization of Hydrocarbons of the Olefin Series," A. D. Petrov, M. A. Cheltsova, M. I. Batuyev, Inst of Org Chem, Acad Sci USSR

"Iz Ak Nauk SSSR, Otdel Khim Nauk" No 5, pp 571-575

Expts on isomerization of hexene-3, 4-methylpentene-1 (I), 2-methylpentene-2 (II), and hydroisomerization of 2-ethylhexene proved that isomerization of normal and branched hexenes and octenes, with formation of 1 or 2 side chains,

195T16

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results from 2 parallel, independent reactions. Found that II cannot be isomerized to form 2 side chains, while I gives good yield of 2,3-dimethylbutene-1.

195T16

PA 195T16

CHEL'TSOVA, M. A.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Organic Chemistry

Behavior of γ-alkenyl halides in the Grignard-Wurtz synthesis. A. D. Petrov, M. A. Chel'tsova, and E. A. Chernyshev. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1952, 949–54(Engl. translation).—See *C.A.* 48, 547g.
H. L. H.

CHEL'TSOVA, M. A.

Organic Chemistry

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Felix Saunders

Behavior of γ-alkenyl halides in the Grignard-Wurtz synthesis. A. D. Petrov, M. A. Chel'tsova, and E. A. Chernyshev. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1952, 1087–93.—Primary, secondary, and tertiary γ-alkenyl halides do not enter the Grignard-Wurtz reaction. The condensation of PrMgBr with 4-bromo-4-propyl-1,6-hexadiene takes place due to the circumstance that 1 allyl group of the halide isomerizes to a propenyl group, followed by an allylic shift and formation of 6-bromo-4-propyl-1,4-heptadiene (cf. *C.A.* 44, 1888*b*). To 16 g. activated Mg was added at 10° 120 g. CH_2:$CHCH_2CMe_2Br$ and the product was treated with MeBr; after usual treatment the mixt. gave 3.5 g. product, b. 70–80°, which after hydrogenation, b. 73–80°, n_D^{20} 1.3761, d_{20} 0.6684, provisionally identified as *isohexane;* some *isohexene* was also isolated, identified as *dibromide*, b. 98–9°, n_D^{20} 1.5110, d_{20} 1.5500. If 70 g. CH_2:$CHCH_2CMe_2$ Cl is added to MeMgBr from 24 g. Mg, the usual treatment gave 3 g. product identical with the above (b. 70–80°) and 40% of RCl is unreacted. If $HgCl_2$ is used as a promoter, some 13% unreacted RCl is recovered and the mixt. yields a solid, apparently an organomercury compound. Satn. of $PrCMe_2OH$ with HCl gave *$PrCMe_2Cl$*, b. 110–12°, n_D^{20} 1.4105, which (131 g.) added to MeMgBr (from 48 g. Mg) and treated as usual, gave 15% *2,2-dimethylpentane*, b. 78–9°, n_D^{20} 1.3820, d_{20} 0.6730; if $HgCl_2$ is added as a promoter, the yield is 12%. MeCH(OH)CH_2-CH:CH_2 yielded *$MeCHBrCH_2CH$:CH_2*, b. 111–12°, n_D^{20} 1.4520, d_{20} 1.2417, which failed to react with MeMgBr even after prolonged refluxing. To CH_2:$CHCH_2MgBr$ from 50 g. RBr and excess Mg was added 50 g. MeCHBr-CH_2CH:CH_2 and the mixt. after 50 hrs. reflux gave only the starting material. RMgBr from MeCHBrPr (60 g.) treated with 50 g. CH_2:$CHCH_2Br$ and refluxed 80 hrs. gave 3.7 g. impure product, b. 110–13°, which after refluxing over Na gave unstated amt. of *4-methyl-1-heptene*, b. 112–13°, d_{20} 0.7191, n_D^{20} 1.4105. Treatment of *$Me_2C(OH)$-CH_2CH:CH_2* with PBr_3 in pyridine at 0° gave the corresponding *RBr* after 3–4 hrs. heating: the product, b_{20} 42–7°, n_D^{20} 1.4650, d_{20} 1.2001, (40 g.) was oxidized with 80 g. $KMnO_4$ (1% aq. soln.) at 0° yielding Me_2CO, HCO_2H, some MeCH(OH)CO_2H, Me_2C:$CHCO_2H$, and valerolactone mixed with the hydroxyvaleric acid. Satn. with HBr of $PrC(OH)(CH_2CH$:$CH_2)_2$ at 80–90° gave the corresponding bromide, which (45 g.) and 50 g. PrBr added to 10 g. Mg and refluxed gave 6.2 g. tridecadiene, b_{20} 98–104°, n_D^{20} 1.4484, the latter, oxidized with $KMnO_4$, gave MePrCO, HCO_2H, PrCHMeCO_2H (isolated also as Ag salt and amide, m. 77°). Hence the RBr isomerizes during reaction into 6-bromo-4-propyl-1,4-heptadiene and the final diene is *$PrCH$-$MeCH$:$CPrCH_2CH$:CH_2*. *$PrBr$* with 3-buten-1-ol in pyridine gave *$MeCH$:$CHCH_2Br$*, b. 97–9°, d_{20} 1.3247, n_D^{20} 1.4638 (Juvala, *C.A.* 25, 4844). This (30 g.) treated with 5.3 g. Mg in Et_2O and the mixt., freed of Et_2O and treated at 70–80° with 36 g. Bu_3CCl 5 hrs. and heated 3 hrs. longer gave only *5-butyl-4-nonene*, b_{10} 91–3°, n_D^{20} 1.4308. Under same conditions BuBr and Bu_3CCl gave 15% Bu_4C.

G. M. Kosolapoff

AF 7-13-54